

# Knowledge Organiser

Year 10

Food Preparation & Nutrition

Protein

## Section A: Key vocabulary

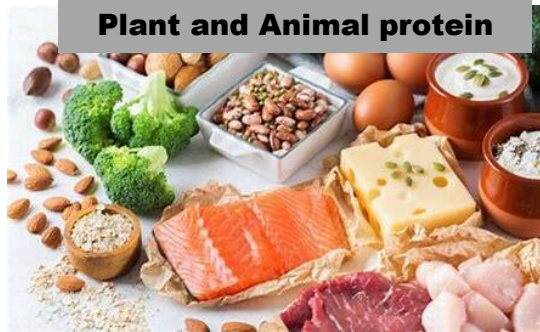
## Section B

## Section D

### What I need to know:

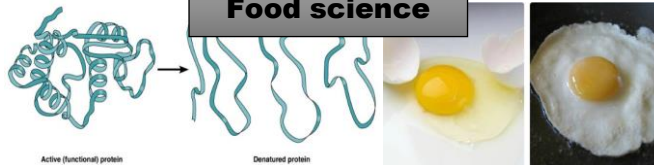
- the specific function of protein in the body
- the main sources in the diet
- dietary reference values
- the consequences of malnutrition (over and under)
- complementary actions of protein

### Plant and Animal protein



## Section C

### Food science



**Denaturation:** Protein shape is changed as a bond breaks and it unravels due to heat, acid or action

**Coagulation:** Protein structure changes from solid to liquid. Irreversible

### Kwashiorkor



**1g  
PRT=  
4KCAL**

**2-3 portions of protein a day**

Protein Intake	Per day	
Men		60g
Women		55g
	Pregnant	78g
Infants	0-6 months	1.1g
	6-12 months	1.68g
Child	1-3 Yrs	16.7g
	4-6 Yrs	20.1g
	7-9 Yrs	29.6g

<b>Protein</b>	essential for growth, repair and maintenance of the body.
<b>Amino acids</b>	units of protein, made up of long chains.
<b>Essential amino acids</b>	sometimes known as indispensable amino acids, as the body can't make these and they must be obtained through the diet: histidine, isoleucine, lysine, leucine, methionine, phenylalanine, threonine, tryptophan, valine.
<b>Non essential amino acids</b>	sometimes known as dispensable amino acids, as the body can make these: alanine, asparagine, aspartic acid glutamic acid.
<b>Low Biological Value (LBV)</b>	missing one or more essential amino acid. Normally plant based.
<b>High Biological Value (HBV)</b>	contains all the essential amino acids that the body can't make. Normally animal based expect soya and quinoa.
<b>Kwashiorkor</b>	a form of malnutrition linked to a lack of protein in the diet.
<b>Complementary Protein</b>	when 2 or more LBV proteins foods are combined together to ensure the diet provides adequate amounts of protein.
<b>Conditionally essential</b>	needs to be obtained from a food source during certain life stages because they can't be produced in sufficient quantities to satisfy the needs of the body e.g. infancy.

# Knowledge Organiser

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Food Preparation & Nutrition

Meat & Poultry

## Section A: Key vocabulary

<b>Red meat</b>	Beef, lamb and pork are mainly eaten in the UK.
<b>White meat</b>	Turkey and chicken are mainly eaten in the UK.
<b>Offal</b>	Offal is the name given to the edible internal parts of animals produced for food, including heart, kidney, liver and tongue.
<b>Collagen</b>	The connective tissue in and around the muscle fibres and tendons is mostly collagen. When meat is cooked, the collagen becomes soft and soluble, and forms gelatine.
<b>Elastin</b>	This is much more elastic connective tissue. It is yellow in colour and remains tough, even when cooked. The ligaments which join two bones together are mostly made up of elastin.
<b>Fine muscle fibres</b>	These tend to come from the muscles of young animals, or in older animals from the muscles which do least work. They contain little collagen and are tender even when cooking times short, e.g. grilling.
<b>Thick muscle fibres</b>	These tend to be from older animals and also muscles which do the most 'work' – such as neck and shin. They have more connective tissue to prevent muscle damage. This type of meat is tougher and needs long, slow cooking with moisture to make it tender, e.g. casserole.
<b>Visible fat</b>	Creamy white in colour. It is found underneath the skin and between muscles.
<b>Invisible fat</b>	Found in connective tissue surrounding the bundles of muscle fibres. Can sometimes be seen as it gives a marble effect to meat.

## Section B

### What I need to know:

- the value of meat and poultry within in the diet
- features and
- correct storage to avoid food contamination
- the working characteristics meat and poultry
- the origins of meat and poultry
- physical and chemical changes that occur as a result of given actions

## Section C

### Food science

When meat is cooked the proteins in meat **coagulate** on heating. At around 60°C the protein begins to **denature** and the muscle fibres become firmer. After 60°C the fibres shrink and the meat juices are squeezed out.



**Millard Reaction:** Amino acids and sugars react when heated to produce a brown colour. It also gives meat its distinctive flavour and smell.

## Section D

Meat and poultry are high risk food and should be stored in the fridge at 0-5°C

Raw meat and poultry should be prepared on a red chopping board

Cooked meat and poultry should be prepared on a yellow chopping board

Useful website: [www.foodfactoflife.org.uk/14-16-years/food-commodities/meat/](http://www.foodfactoflife.org.uk/14-16-years/food-commodities/meat/)

## Section E



The structure of meat is: Animal flesh consists of muscle tissue or fibres, connective tissue and fatty (adipose) tissue.

# Knowledge Organiser

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Food Preparation & Nutrition

Vegetarians

## Section A: Key vocabulary

<b>Vegan</b>	Eats no animal products and consumers a plant based diet.
<b>Vegetarian</b>	The Vegetarian Society defines a vegetarian as: "Someone who lives on a diet of grains, pulses, nuts, seeds, vegetables and fruits with, or without, the use of dairy products and eggs. A vegetarian does not eat any meat, poultry, game, fish, shellfish* or by-products of slaughter."
<b>Lacto ovo</b>	Eat milk, dairy and eggs but don't eat meat, fish and poultry.
<b>Lacto</b>	Eat milk, dairy but don't eat eggs, meat, fish and poultry.
<b>Soy beans</b>	Good source of HBV protein, calcium and iron.
<b>Tofu</b>	Made by soaking soybeans and extracting their milk. The milk is curdled, pressed into a solid block and cooled. It is then cut into smaller blocks and packaged along with water. Good source of iron, calcium and HBV protein.
<b>Nuts</b>	Provide an LBV source of protein, fibre and essential fatty acids such as omega 3.
<b>Pulses</b>	The edible seed in a pod e.g. beans, lentils, chick peas. Low in fat, high in fibre and contains LBV protein
<b>Seeds</b>	Seeds are so nutrient-dense you don't have to eat a lot of them. They provide LBV protein and essential fatty acids such as omega 3
<b>Complementary Protein</b>	when 2 or more LBV proteins foods are combined together to ensure the diet provides adequate amounts of protein.
<b>Low Biological Value (LBV)</b>	missing one or more essential amino acid. Normally plant based.

## Section B

### What I need to know:

- the value of soya, tofu, nuts, beans and seeds within in the diet
- features and characteristics
- correct storage to avoid food contamination
- the working characteristics meat and poultry
- the origins of soya, tofu, nuts, beans and seeds
- physical and chemical changes that occur as a result of given actions

## Section C



## Section D

### How Tofu is Made

*It's like cheese!*



**Step 1.**  
Soak soybeans for 4-10 hours.



**Step 2.**  
Grind soybeans with cold water.



**Step 3.**  
Boil ground soybeans for 3-10 minutes.



**Step 5.**  
Coagulate soy juice.  
For firmer tofu, add salts (e.g. calcium sulphate). For softer tofu, add acids (e.g. glucono delta-lactone)



**Step 4.**  
Remove foam and filter out solids.



**Step 6.**  
Press curds into tofu sheets and cut into blocks.



**Soya beans are an exception to the rule and are a HBV plant based protein**



# Knowledge Organiser

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Food Preparation & Nutrition

Food Hygiene & Safety

## Section A: Key vocabulary

<b>Micro organisms</b>	tiny and microscopic they include bacteria, mould and yeast.
<b>Bacteria</b>	single celled microorganism can be good or can be harmful
<b>Pathogenic</b>	harmful bacteria
<b>Mould</b>	microscopic fungi (small plants). Some moulds can be harmful some are used to give foods, flavour e.g. in chesses and salami.
<b>Yeast</b>	Single celled microorganism that through fermentation converts its food into alcohol and carbon dioxide. Used in wine and bread making.
<b>Cross Contamination</b>	the transfer of bacteria from one substance or object to another
<b>High risk foods</b>	have the right conditions to support the growth of bacteria; moist and high in protein. Need to be stored in the fridge.
<b>Low risk foods</b>	don't have the right conditions to support the growth of bacteria; often dry and stored in the cupboard.
<b>Used by date</b>	given to high risk foods as the food will make you ill after eating it past this date
<b>Best before date</b>	given to low risk foods as if you eat the food past this date it may effect the quality

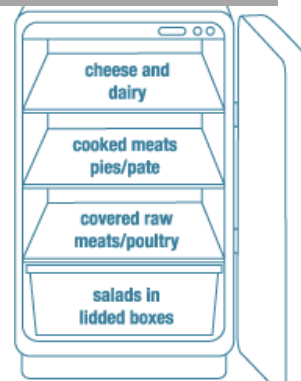
## Section B

### What I need to know:

- how to store foods correctly
- the importance of date-marks and labelling
- growth conditions, ways of prevention and control methods for enzyme action, mould growth and yeast production
- signs of food spoilage
- how to control bacteria
- types of bacterial cross-contamination and their prevention
- food preservation

## Section C

### How to store foods in the fridge



**Food poisoning bacteria**  
salmonella, campylobacter, e-coli, staphylococcus

**Types of preservation**  
jam making, pickling, freezing, bottling, vacuum packing

## Section D

### Key Temperatures

Reheat & cook food to 75°C+ to reduce bacteria to a safe level  
Hot hold food at 63°C+



**Danger Zone**  
5°C-63°C  
The temperature that bacteria is mostly likely to multiply



0-5°C Fridge: Slows growth of bacteria  
-18°C Freezer: Bacteria is dormant



## Section E

### Types of chopping boards

**RAW MEAT**

**RAW FISH**

**COOKED MEATS**

**SALADS & FRUITS**

**VEGETABLES**

**DAIRY PRODUCTS**

# Knowledge Organiser

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Food Preparation & Nutrition

Fats

## Section A: Key vocabulary

<b>Saturated fat</b>	have a melting point at about room temperature and are therefore usually hard . Normally come from animal sources and have no double bond.
<b>Monounsaturated fat</b>	have one double bond. Monounsaturated fats help maintain levels of good HDL cholesterol and decrease levels of harmful LDL-cholesterol.
<b>Polyunsaturated fat</b>	have more than one double bond and also help lower the level of "bad" LDL cholesterol in your blood.
<b>Cholesterol</b>	is a fatty substance needed for normal functioning of the body. It helps with the digestion of fats. It is made by the body, but also found in fatty foods. Cholesterol is carried around the body by proteins called lipoproteins. There are two types:
<b>LDL: low-density lipoprotein</b>	carries cholesterol to the cells that need it, but if there's too much cholesterol for the cells to use, it can build up in the artery walls, leading to disease of the arteries
<b>HDL: high-density lipoprotein</b>	carries cholesterol away from the cells and back to the liver, where it's either broken down or passed out of the body as a waste.
<b>Saturated fat</b>	have a melting point at about room temperature and are therefore usually hard . Normally come from animal sources and have no double bond.
<b>Monounsaturated fat</b>	have one double bond. Monounsaturated fats help maintain levels of good HDL cholesterol and decrease levels of harmful LDL-cholesterol.
<b>Polyunsaturated fat</b>	have more than one double bond and also help lower the level of "bad" LDL cholesterol in your blood.

## Section B

### What I need to know:

- the specific function of fat in the body
- the main sources in the diet
- dietary reference values
- the consequences of malnutrition (over and under)

## Section C

**Function:** Insulates and warms the body. It protects vital organs. Fat soluble vitamins: A, D, E, K, need fat to be absorbed by the body. Too much fat, especially saturated fat can be bad for the body!

Saturated



Unsaturated

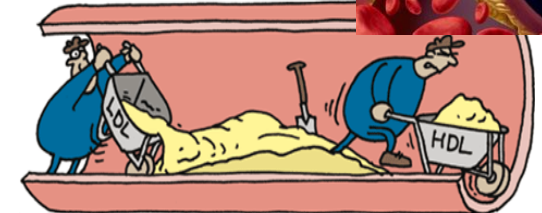


## Section D

Intake	Fat	Saturated
Men	90g	30g
Women	70g	20g
Children	70g	20g

**1g  
FAT=  
9KCAL**

Too much fat



## Section E

### Food Science

Shortening	give foods a crumbly and crisp texture such as pastry
Aeration	adding air
Plasticity	ability to be spread and shaped
Emulsification	the process of mixing oil and water that wouldn't normally stay together into an emulsion using an emulsifier

# Knowledge Organiser

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Carbohydrates

## Section A: Key vocabulary

<b>Simple Carbohydrate</b>	comes from sugary foods and provides quick releasing energy.
<b>Starchy Carbohydrate</b>	comes from starchy foods and provides slow releasing energy as they have harder to break down.
<b>Monosaccharides</b>	simplest form of CHO. Glucose, Galactose and Fructose.
<b>Disaccharides</b>	made up of monosaccharides. Sucrose, Maltose and Lactose.
<b>Polysaccharides</b>	found in plants and made up of many glucose molecules joined together.
<b>Glucose</b>	all CHO is broken down into glucose before being absorbed into your blood. Glucose is used by your body for energy, fueling your activities.
<b>Glycogen</b>	if more glucose is consumed than can be stored as glycogen, it's converted to fat for long-term storage of energy.
<b>GI (Glycemic Index)</b>	shows how quickly the carbohydrate food releases glucose into your blood. HI GI food include chips, white bread and ice-cream.
<b>Fibre</b>	need for good bowel health and some types can lower cholesterol. There are two types: insoluble or soluble.

## Section B

### What I need to know:

- the specific function of carbohydrate in the body
- the main sources in the diet
- dietary reference values
- the consequences of malnutrition (over and under)

**1g  
CHO=  
4KCAL**

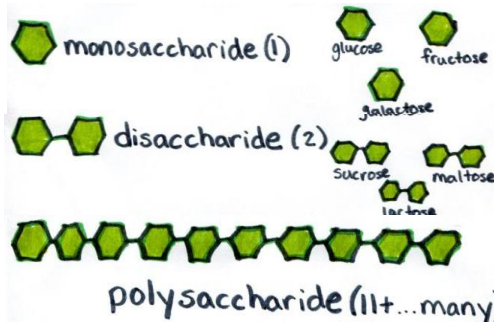
## Section C



**Simple Carbohydrates**



**Starchy Carbohydrates**



## Section D



**Too much simple CHO**

### Sugar: maximum daily amounts

**4-6 years**



5 cubes (19 grams)

**7-10 years**



6 cubes (24 grams)

**11+ years**



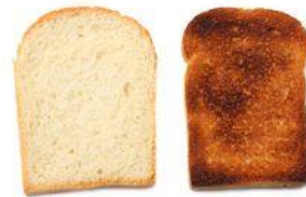
7 cubes (30 grams)

\*1 cube = 4g sugar

## Section E



**Gelatinisation:** Starch absorbs liquid, swells and burst thickening a liquid



**Dextrinization:** Starch is broken down when put under dry heat. This gives baked food a brown colour